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EXAMINER

CURS, NATHAN M

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/523,737	<b>Applicant(s)</b> HOEDT, ERIC	
	<b>Examiner</b> NATHAN M. CURS	<b>Art Unit</b> 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/05</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because of undue length. Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

2. Claims 1, 2 and 4-7 are objected to because of the following informalities:  
Claim 1 line 4 should be changed as follows: "...which ~~can be~~ is modulated..."  
In claim 2, the quotes should be removed from "Laser Enable".  
Claims 4-7 should be changed as follows: "A method according to..."  
Claim 6 line should be changed as follows: "...wherein the signal monitoring output"  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 5 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the evaluation of the normal data signal" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 in lines 1-4 recites that the single claimed device has an interface comprising a transmitter side at the transmitter end [of the optical data transmission line] and a received side at the receiver end [of the optical data transmission line]. This amounts to claiming that the device that has an interface spanning the length of the optical data transmission line, which does not make sense. How can one device interface be located at two remotely located ends of a transmission line? The claim has been examined as if the device is located at one end of the transmission line relative to another device at the other end.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5 and 8-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. ("Yoshida") (US Patent No. 5615033) in view of Grivna et al. ("Grivna") (US Patent No. 7062177) and further in view of Darcie et al. ("Darcie") (US Patent No. 5790287).

Regarding claim 1, Yoshida discloses a method for the transmission of

Art Unit: 2613

information via an optical data transmission line (fig. 3 and col. 5 lines 28-56), at least one end of which being provided with an optoelectronic interface having a transmitter side and a receiver side (fig. 4A elements 11 and 13 and col. 5 line 57 to col. 6 line 9), a light source which can be modulated to carry information through a light signal by data transmission being provided transmitter side (fig. 4A element 13 and col. 6 lines 31-36), and a light-sensitive receive element, for converting light to an electrical signal that varies with intensity of light received by the receive element being provided receiver side (fig. 4A element 11 and col. 6 lines 25-30), said method comprising: amplifying (col. 6 lines 63-66, where AGC reads on amplifying) and processing a signal at an output of the receive element (fig. 4A element 15 and col. 6 lines 25-30) and monitoring and recording signal intensity of light received by the receive element independently of current strength of the electrical signal to obtain a signal monitoring output (col. 6 lines 37-53, where monitoring signal level is independent of current strength, where the content of the output signal informing the power supply control section reads on a recording of signal intensity, and where the output signal to the power supply control section reads on a monitoring output); displaying the recorded signal at a signal monitoring device to show the presence or absence of a data signal (fig. 4A elements 19 and 18 and col. 6 lines 37-48, where providing the output signal to the power supply control section is a display of the recorded signal to show presence or absence of a data signal); lowering intensity of light at the transmitter side to a minimum level such that the signal monitoring output at the receive-side end records and displays a missing input signal of the light receive element (fig. 4A elements 18 and 17 and col. 6 lines 37-

Art Unit: 2613

62 and fig. 4A element 11 in light of fig. 3, where the opposite-end receiver records and display a missing input signal when the transmit-end transmitter laser is shut off); and again raising emitted light intensity above the threshold value (fig. 4A elements 20 and 18 and col. 7 lines 43-58). Yoshida discloses that the lowering of intensity of light at the transmitter side is done by shutting off the transmitter semiconductor laser power (col. 6 lines 31-36 and lines 49-53), but does not specifically disclose that the resulting zero intensity output is below a minimum threshold value of signal amplitude used for data transmission. Further, Grivna discloses optical transmission using lasers (fig. 2 VCSEL elements) and disclose that for optical transmission, a semiconductor laser is generally never fully turned off in normal operation (col. 8 lines 27-40). One of ordinary skill in the art at the time of the invention could have operating the semiconductor laser of Yoshida during normal data operations such that the laser is not fully turned off, and the result would have been predictable; namely, the data signal would have a minimum, non-zero threshold value of signal amplitude for data transmission. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to operate the semiconductor laser of Yoshida during normal data operations such that the laser is not fully turned off, for the predictable result of having a minimum, non-zero threshold value of signal amplitude for data transmission. The combination of Yoshida and Grivna discloses sending a manually triggered continuous optical power signal for checking path integrity (Yoshida: fig. 4 elements 20 and 18 and col. 7 lines 43-58), but does not disclose repeatedly lowering and raising of the light intensity in time cycle in encoded form to provide an encoded signal monitoring output and evaluating the encoded signal

Art Unit: 2613

monitoring output by a corresponding evaluation logic. Darcie discloses uses encoded interrogation pulses for checking path integrity which are achieved by gating an optical transmitter (figs. 1 and 6 and col. 7 line 61 to col. 7 line 36), where an opposite end receiver responds to the interrogation pulses (col. 9 lines 27-31, where the opposite end receiver responding to the interrogation pulses reveals inherent interrogation pulse evaluation means at the opposite end receiver). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination such that the transmitter laser disconnecting circuit of the combination is gated under control of the power supply control section, such that the transmitter outputs interrogation pulses for checking path integrity, with evaluation and response means at the opposite end receiver to respond to the interrogation pulses, since Darcie discloses that the interrogation pulses do not waste power like continuous power transmission does.

Regarding claim 2, the combination of Yoshida, Grivna and Darcie discloses a method according to claim 1, wherein a laser is provided as transmit element to provide a laser signal (Yoshida: fig. 4A element 14 and col. 6 lines 31-36) and a photodiode is provided as a receive element (Yoshida: fig. 4A element 12 in light of col. 5 lines 8-12), and a laser supply voltage signal is switched on and off by drive electronics of the laser using a Laser Enable signal (Yoshida: fig. 4 elements 20 and 18 and col. 7 lines 43-58 and Darcie: figs. 1 and 6 and col. 7 line 61 to col. 7 line 36, as applicable in the combination, where the gating control signal of the combination reads on a laser enable signal).

Regarding claim 3, the combination of Yoshida, Grivna and Darcie discloses a

Art Unit: 2613

method according to claim 1, wherein the laser supply voltage is switched on and off in encoded form (Darcie: figs. 1 and 6 and col. 7 line 61 to col. 7 line 36, as applicable in the combination, where the interrogation pulses are encoded light).

Regarding claim 4, the combination of Yoshida, Grivna and Darcie discloses a method according to claim 1 but does not disclose that the evaluation logic is implemented by software. However, the opposite end receiver of the combination includes a signal processor for processing received signals, like the transmit end (Yoshida: the fig. 4A element 15 and col. 6 lines 25-30 applicable to the opposite end, in light of fig. 3 right-side element 5). The office takes official notice that software programmable signal processors with software programmable logic are well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to program the signal processing logic of the opposite end receiver to evaluate the interrogation pulses received at the opposite end receiver, since a software programmable signal processor has the advantage of controlling signal processing applications by way of simple programming instead of by requiring application-specific hardware.

Regarding claim 5, the combination of Yoshida, Grivna and Darcie discloses a method according to claim 1 but does not disclose that the evaluation takes place in a separate microprocessor independent of evaluation of the normal data signal. However, the opposite end receiver of the combination includes a signal processor for processing the received data signals, like the transmit end (Yoshida: the fig. 4A element 15 and col. 6 lines 25-30 applicable to the opposite end, in light of fig. 3 right-side



element 5). The office takes official notice that software programmable signal processors with software programmable logic are well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use an additional signal processor at the opposite end, and programming the logic of the additional signal processor to evaluate the interrogation pulses received at the opposite end receiver, since an additional software programmable signal processor has the advantage of using dedicated and controlled signal processing applications by way of simple programming instead of by requiring application-specific hardware.

Regarding claim 8, Yoshida discloses a device for the transmission of information via an optical data transmission line having a transmission end and a receiving end (fig. 3 and col. 5 lines 28-56), said device comprising: an optoelectronic interface comprising a transmitter side and a receiver side (fig. 4A elements 11 and 13 and col. 5 line 57 to col. 6 line 9), the interface having a light transmitter at the transmitter side, and electronics which modulate transmitted light corresponding to a data signal to be transmitted to obtain a modulated input signal (fig. 4A element 13 and col. 6 lines 31-36) and having a light-sensitive receive element at the receiver side, an output signal of which is modulated analogously to the modulated input signal to obtain a modulated receive signal fig. 4A element 11 and col. 6 lines 25-30), a monitoring device being additionally provided at the receiver side which, independently of the modulation of the receive signal, monitors and records the presence or absence of transmitted input signal as a signal monitoring output (fig. 4A element 19 col. 6 lines 37-53, where monitoring signal level is independent of the modulation data of the receive

Art Unit: 2613

signal, where the content of the output signal informing the power supply control section reads on a recording of signal intensity, and where the output signal to the power supply control section reads on a monitoring output) and displays it at a signal monitoring device (fig. 4A elements 19 and 18 and col. 6 lines 37-48, where providing the output signal to the power supply control section is a display of the recorded signal to show presence or absence of a data signal), wherein, transmitter side, devices are provided for lowering and raising of intensity of transmitted light energy, the intensity of the transmitted light energy in the lowered state at a minimum level and the intensity of the light energy in a raised state being above a threshold value at which the monitoring device records the presence of a data transmission signal (fig. 4A elements 18 and 17 and col. 6 lines 37-62 and fig. 4A element 11 in light of fig. 3, where the opposite-end receiver records and display a missing input signal when the transmit-end transmitter laser is shut off, and fig. 4A elements 20 and 18 and col. 7 lines 43-58). Yoshida discloses that the lowering of intensity of light at the transmitter side is done by shutting off the transmitter semiconductor laser power (col. 6 lines 31-36 and lines 49-53), but does not specifically disclose that the resulting zero intensity output is below a minimum threshold value of signal amplitude used for data transmission. Grivna discloses optical transmission using lasers (fig. 2 VCSEL elements) and disclose that for optical transmission, a semiconductor laser is generally never fully turned off in normal operation (col. 8 lines 27-40). One of ordinary skill in the art at the time of the invention could have operating the semiconductor laser of Yoshida during normal data operations such that the laser is not fully turned off, and the result would have been predictable;

Art Unit: 2613

namely, the data signal would have a minimum, non-zero threshold value of signal amplitude for data transmission. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to operate the semiconductor laser of Yoshida during normal data operations such that the laser is not fully turned off, for the predictable result of having a minimum, non-zero threshold value of signal amplitude for data transmission. Also, the combination of Yoshida and Grivna discloses sending a manually triggered continuous optical power signal for checking path integrity (Yoshida: fig. 4 elements 20 and 18 and col. 7 lines 43-58) but does not disclose that the lowering and raising of intensity of transmitted light energy is clock-pulse-controlled or that it is encoded in correspondence with the lowering and raising of intensity of transmitted light energy, or an evaluation device being provided for the evaluation of the output signal encoded corresponding to the raising and lowering of the transmission signal. Darcie discloses uses encoded interrogation pulses for checking path integrity which are achieved by gating an optical transmitter (figs. 1 and 6 and col. 7 line 61 to col. 7 line 36), where an opposite end receiver responds to the interrogation pulses (col. 9 lines 27-31, where the opposite end receiver responding to the interrogation pulses reveals inherent interrogation pulse evaluation means at the opposite end receiver). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination such that the transmitter laser disconnecting circuit of the combination is gated under control of the power supply control section, such that the transmitter outputs interrogation pulses for checking path integrity, using the opposite end signal processor for evaluation and response for the interrogation pulses, since Darcie

Art Unit: 2613

discloses that the interrogation pulses do not waste power like continuous power transmission does.

Regarding claim 9, the combination of Yoshida, Grivna and Darcie discloses a device according to claim 8 wherein a laser is provided as a light transmission device (Yoshida: fig. 4A element 14 and col. 6 lines 31-36).

Regarding claim 10, the combination of Yoshida, Grivna and Darcie discloses a device according to claim 9 wherein a separate microprocessor is provided for the evaluation of the encoded signal monitoring signal (Yoshida: the fig. 4A element 15 and col. 6 lines 25-30 applicable to the opposite end, as applicable in the combination for the interrogation pulses in light of fig. 3 right-side element 5).

Regarding claim 11, the combination of Yoshida, Grivna and Darcie discloses a device according to claim 10 but does not disclose that the evaluation logic is implemented by software. However, the opposite end receiver of the combination includes a signal processor for processing the received data and interrogation signals (the fig. 4A element 15 and col. 6 lines 25-30 applicable to the opposite end, as applicable in the combination, in light of fig. 3 right-side element 5). The office takes official notice that software programmable signal processors with software programmable logic are well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to program the signal processing logic of the opposite end receiver to evaluate the interrogation pulses received at the opposite end receiver, since a software programmable signal processor has the advantage of controlling signal processing applications by way of simple

programming instead of by requiring application-specific hardware.

Regarding claim 12, the combination of Yoshida, Grivna and Darcie discloses a device according to claim 9 wherein clock-pulse-controllable drive electronics for a laser are provided as a device for raising and lowering the light energy (Yoshida: fig. 4A element 18 as applicable in the combination for interrogation pulses).

Regarding claim 13, the combination of Yoshida, Grivna and Darcie discloses a device according to claim 12 wherein a device is provided for the clock-pulse-controlled switching on and off of laser supply voltage (Yoshida: fig. 4A element 17 as applicable in the combination for interrogation pulses).

Regarding claim 14, the combination of Yoshida, Grivna and Darcie discloses a device according to claim 10 wherein clock-pulse-controllable drive electronics for a laser are provided as a device for raising and lowering the light energy (Yoshida: fig. 4A element 18 as applicable in the combination for interrogation pulses).

Regarding claim 15, the combination of Yoshida, Grivna and Darcie discloses a device according to claim 14 wherein a device is provided for the clock-pulse-controlled switching on and off of the laser supply voltage (Yoshida: fig. 4A element 17 as applicable in the combination for interrogation pulses).

Regarding claim 16, the combination of Yoshida, Grivna and Darcie discloses a device according to claim 11 wherein clock-pulse-controllable drive electronics for a laser are provided as a device for raising and lowering the light energy (Yoshida: fig. 4A element 18 as applicable in the combination for interrogation pulses).

Regarding claim 17, the combination of Yoshida, Grivna and Darcie discloses a

Art Unit: 2613

device according to claim 16 wherein a device is provided for the clock-pulse-controlled switching on and off of laser supply voltage (Yoshida: fig. 4A element 17 as applicable in the combination for interrogation pulses).

Regarding claim 18, the combination of Yoshida, Grivna and Darcie discloses the method of claim 1 wherein the receive element comprises a photodiode (Yoshida: fig. 4A element 12 in light of col. 5 lines 8-12).

Regarding claim 19, the combination of Yoshida, Grivna and Darcie discloses the method of claim 1 wherein the light transmitter comprises a laser (Yoshida: col. 6 lines 31-36 and lines 49-53).

Regarding claim 20, the combination of Yoshida, Grivna and Darcie discloses the method of claim 19 wherein the laser is driven by a laser supply voltage that is switched off and on in encoded form (Yoshida: fig. 4A elements 18 and 17 and Darcie: figs. 1 and 6 and col. 7 line 61 to col. 7 line 36, as applicable in the combination).

7. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida (US Patent No. 5615033) in view of Grivna (US Patent No. 7062177) and further in view of Darcie (US Patent No. 5790287) as applied to claims 1-5 and 8-20 above, and further in view of Gavlik (US Patent No. 6745325).

Regarding claim 6, the combination of Yoshida, Grivna and Darcie discloses a method according to claim 1 but does not disclose that signal monitoring output provides data in the form of data words and a start bit is transmitted at the beginning of a transmitted data word and a stop bit at the end of the data word. Gavlik discloses

Art Unit: 2613

uses serial RS-232 protocol, including data words with start and stop bits, between communication device components for asynchronous signaling (figs. 1 and 2 and col. 7 lines 38-52). One of ordinary skill in the art at the time of the invention could have used RS-232 protocol between the signal detection section and power supply control section of the combination and the results would have been predictable; namely, the RS-232 would provide serial communication between the devices with a protocol that corresponds to the asynchronous occurrence of detected signal faults. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use RS-232 protocol between the signal detection section and power supply control section of the combination for the predictable result of providing serial communication between the devices with a protocol that corresponds to the asynchronous occurrence of detected signal faults

Regarding claim 7, the combination of Yoshida, Grivna and Darcie discloses a method according to claim 6 wherein format specification of the data words corresponds to an RS 232 interface (Gavlik: col. 7 lines 38-52 as applicable in the combination).

### ***Conclusion***

8. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

Art Unit: 2613

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pairedirect.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/NATHAN M CURS/

Examiner, Art Unit 2613